

**[A] USER SUPPORT APPARATUS AND SYSTEM USING AGENTS****BACKGROUND OF THE INVENTION****1. Field of the Invention**

[0001] The present invention relates to a user support technique, [and it]
5 particularly [relates to] a user support system that [supports] assists with user[s']
processes such as [an] operations and [an] information retrievals using agents.

2. Description of the Related Art

[0002] Since [the] Internet access [at] from the home has [been] become
common recently, [WWW] the number of World Wide Web (WWW) users [are]
10 has grown[ing] rapidly. It is very likely that [necessary] information [that] these
users want and need exists somewhere within the [huge] vast number of web
sites. [As] Since it is convenient for [the] home users [at home] to access [to a]
huge amounts of information from all over the world, the number of [the] home
users [is further] will increase[ing] further.

15 **[0003]** [As the population of the Web users grows,] The WWW is also playing
a larger role as an advertising medium [media] as the Web user population
grows. Many advertisers place their advertisements on [their Web sites and the
other] popular Web sites, as well as on their own. [If the advertisements are
placed on the other's Web sites, the] Advertisers can [provide] insert hyperlinks
20 into their advertisements displayed on other sites [with links to their own Web
sites so that they can] and easily redirect [the] users to their own Web sites

[easily]. [The c] Conventional media, [such as] including [TV] television, radio, and newspapers, do not have such a feature.

[0004] However, the [population] number of both information providers and readers is [explosively] growing explosively and [such an] the unexpected
5 growth is becoming a hindrance to the effective use of [utilizing] available information [very well]. From the users' viewpoint [of users], it is very difficult to find [out desired] the information they desire among [a] the large amount of [available] information available. Since many [beginners or persons who lack computer literacy are] of the people accessing the Internet today are beginners
10 or lack computer skills, it is [required] necessary to develop a technology by which such novices can easily search for information [easily].

[0005] On the other hand, from the [viewpoint of] information providers' perspective, advertising on the Web has not been [effectively] conducted effectively. Since the [information] communications infrastructure is not likely to
15 catch up with the explosive growth of the user population, [an] image-based advertisements [such as a] like banner ads will place [puts] a heavy [network] load on networks and [becomes certainly a time-consuming process when] slow down users who are browsing the Web. Moreover, [not many] users are not likely to click the banner advertisements to [look at] view [its] their details.
20 Therefore, a more effective advertising technology is [necessary] needed to appeal to users.

SUMMARY OF THE INVENTION

[0006] The present invention has been made with a view to the above-mentioned problems, and an objective thereof is to provide a user support technology [by means of which] that will allow a user [can] to access [get
5 desired] information or efficiently execute processes in a friendly environment [or desired processes can be efficiently executed on] using a computer or other device[s]. Another objective [of the present invention] is to provide an efficient advertising technology.

[0007] According to one aspect of the present invention, a user support
10 apparatus is provided. The apparatus comprises [an utterance] the command identification block₁ which has an electronic collection of anticipated user [utterances] commands[,] and identifies [a] the contents of a[n] user command [inputted user utterance,]; [a] the response block₁ which [has] contains an electronic collection of action patterns for an agent [for] to use when responding
15 to [the] user [utterances] commands[,] and enables the agent to respond to [the inputted user] those commands [utterances,]; [a] the search unit which searches for information requested by the user among the information offered by [a plurality of] multiple information providers[,]; and [a] the process unit which executes [a] the process [for prioritizing] that prioritizes the information
20 providers. The [utterance] command identification block further includes an additional collection of anticipated [utterances] commands that trigger the prioritizing process, and the process unit initiates the prioritizing process when

the [inputted] user's [utterance] command is included in the additional [utterance] command collection.

[0008] [The] Agent [here] is [a] used here as the generic name of a function [for] supporting a user's [to] search for information or navigation[ing the user] to [access] the desired information[,]. [and] The function [mainly] primarily enables a personified character to appear on [a] screen and converse with the user. The agent is not always a visible character though. [but the agent here] It may also [means] be a user support program that is [itself] invisible [from] to the user or another function[s] such as a back-end process in the system. The agent's action patterns [of the agent] include [the] agent [utterances] responses, images, behaviors, [or] and any other processes related to user support[ing users]. The [utterance of the] user commands and [the] agent responses [is] are not only made [in a voice] verbally, but may also be given in text [data]. [The utterance] A command may [include oral or] consist of spoken words or sentences that can be converted into text data by a speech recognition process.

[0009] [A specific] An information provider may [be] become a sponsor [who] by requesting[s an administrator of] that the user support apparatus administrator [to] provide [an] its advertisement to the users and paying[s an] the advertising fee [cost]. The advertisement may then be displayed during [the] a conversation between the agent and the user. [A plurality of] Multiple sponsors may be registered [to] with one agent, [so that] allowing the agent [can] to present [the] their advertisements [of the sponsors] to the users.

[0010] The additional [utterance] command collection may be incorporated into the user [utterance] command collection to form one [united] comprehensive collection. Thereby, when [the] a user [utterance] command is identified, both [of] the user [utterance] command collection and the additional
5 [utterance] command collection can be [referred to] referenced.

[0011] The process unit may arrange information related to a specific information provider at the top of a list of search results obtained by the search unit. Thereby, even if multiple [choices are obtained] sources for the user's desired information are identified, the [choice related to the] sponsor's source
10 [can outstand] will stand out and the user [can] will be able to easily recognize the sponsor's information [offered by the sponsor].

[0012] The process unit may emphasize information related to a specific information provider when it presents the user with [a] the search results obtained by the information search unit [is presented to the user]. For instance,
15 the sponsor's information may be highlighted with a different color[,] or displayed in a different size, font type, or font style for ease of recognition. The sponsor's information may also be bordered with a frame or [may be provided with] designated by a mark such as "recommendation".

[0013] The user support apparatus may further comprise a setting unit which
20 enables the user to register a specific information provider [to be granted a] as high priority, and wherein the process unit executes the prioritizing process [for]

with regard to the specifically registered [specific] information providers. Since [the] each user selects his/her favorite sponsors, [the] advertisements can be provided to appropriate target users.

[0014] According to another aspect of the present [prevention] invention, a
5 user support system is provided. The user support system comprises [a plurality of the] multiple user support apparatuses connected to a network as independent network nodes, with each of the apparatuses corresponding to [one] a specialized field. The user [utterance] command collection, the agent action collection, and the additional [utterance] command collection of each [of
10 the] user support apparatus[es are] is generated according to [each] its specialized field. In this [case] configuration, a [server-] client-server system is [configured] created in which [a terminal of] the user's terminal is a client and each of the user support apparatuses is a server. The [plural] multiple user support apparatuses may [be] each provide[d for each] a separate [service]
15 category of service, such as news, fortune telling, travel, cooking, business, health, and [so on] more. In this case, since each [of the] user support apparatus has a specific theme, the agent on each user support apparatus can be easily maintained and refined. [In addition] Additionally, since the [utterances on] commands regarding different topics are processed on [the]
20 different network nodes, the system load can be distributed and balanced among the nodes.

- [0015] In this system, the [plural] multiple user support apparatuses may [include] contain their own [the respective] response blocks [therein] and share the [utterance] command identification block at any one of the network nodes. In this configuration, the shared [utterance] command identification block may include the user [utterance] command collections [of] for all [other] apparatuses. The user support apparatus [including] that hosts the [utterance] command identification block may [be] function as [an] the entrance server or [a] portal server [that can] capable of identifying all user [utterances] commands to be processed [at] by the user support system. [An appropriate] The user support apparatus [for] that should respond[ing] to the user [utterance] command may be selected according to the contents of the [utterance] command identified by the entrance server. Thereby, the user [utterance] command identification and [the] agent response processes can be [processed] performed at [the] different nodes, [resulting in a] balancing[ed] or optimizing[ed load in] the system load.
- 15 [0016] In this system, the [utterance] command identification block may include a[n utterance] command search unit [which] that searches for the user's command [utterance of the user] in the user [utterance] command collection[,] and a reporting unit [which] that notifies [a] the system administrator when the user [utterance] command is not found in the user [utterance] command collection. Thereby, the administrator can revise the user [utterance] command collection and the agent action collection.
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[0017] The [utterance] command identification block may further include an index [storage] file that stores an index of the contents of the user [utterance] command collection. The search unit can initially perform an index-search for the [inputted] user [utterance] command to narrow the search scope and
5 improve the search speed [can be improved].

[0018] The system may further include a library providing unit, which offers the user [utterance] command library to [a] third parties[y] off-line and/or on-line. For instance, the user [utterance] command collection can be provided off-line as a software package, [and can be provided] or on-line by offering [an] access
10 rights [for a] to servers that store[s] the user [utterance] command collection. [As the user utterance collection] Similarly, a general [utterance] command library that records [natural] users' natural [utterances] commands as a natural language library may also be provided to [the] third parties[y]. Thereby, [the] third parties[y] can independently develop a [the] user [utterance] command
15 collection, [the] an additional [utterance] command collection, and [the] an agent action collection, and thus can create a new user support apparatus. As a result, the user support system as a whole can be enhanced.

[0019] Moreover, any arbitrary combination of the above-mentioned structural components in the present invention is still effective as an embodiment when
20 applied as a method, a system, a server, a terminal, [or] a computer program, [and so forth] or any other means of practice. User utterance may be

expressed as "command," whereas agent utterance may be expressed as
"response" throughout the specification.

[0020] This summary of the invention does not [necessarily] describe all
necessary features, so [that] the invention may also be a sub-combination of
5 [these described] the features described.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] Fig. 1 is [an] the overall structure of [a] the network system₁ including
[a] the user support system₁ according to one embodiment of the invention.

[0022] Fig. 2 is [an] the internal structure of [an] the originating server in [a]
10 the user support system.

[0023] Fig. 3 is [an] the internal structure of [an] the index file in [an] the
originating server.

[0024] Fig. 4 is [an] the internal structure of [a] the user [utterance] command
collection in [an] the originating server.

15 [0025] Fig. 5 is [an] the internal structure of [an] the access information file in
[an] the originating server.

[0026] Fig. 6 is [an] the internal structure of [a] the sponsor information file in [an] the originating server.

[0027] Fig. 7 is [an] the internal structure of [an] the additional index file in [an] the originating server.

5 [0028] Fig. 8 is [an] the internal structure of [an] the additional [utterance] command collection in [an] the originating server.

[0029] Fig. 9 is [an] the internal structure of [a] the gourmet server in [a] the user support system.

[0030] Fig. 10 is [an] the internal structure of [a] the page containing [a] the
10 sponsor processing unit.

[0031] Fig. 11 is [an] the internal structure of a user terminal [to] that utilizes [a] the user support system.

[0032] Fig. 12 shows [a] the local agent displayed on [a] screen when a user has activated [a] the user terminal.

15 [0033] Fig. 13 shows [a] the chat agent displayed on [a] screen when [a] the user [makes an utterance] enters a command.

[0034] Fig. 14 shows [a] the gourmet agent displayed on [a] screen when [a] the user asks for specific information.

[0035] Fig. 15 shows how [a] the gourmet agent presents [a] search results to [a] the user.

- 5 [0036] Fig. 16 shows how [a] the gourmet agent notifies [a] the user [of an] when the [updating status of a] sponsor's site has been updated.

DETAILED DESCRIPTION OF THE INVENTION

[0037] The invention will now be described on the basis of the preferred embodiments, which [do] are not intended to limit the scope of the present
10 invention, but serve to exemplify it [the invention]. All of the features and [the] combinations thereof described in the embodiment are not necessarily essential to the invention.

[0038] Fig. 1 shows [an] the overall structure of [a] the network system 10, including [a] the user support system 16, according to one embodiment of the
15 present invention. Here [a] the user terminal 12 and [a] the user support system 16 are connected to each other via the Internet 14. The user terminal 12 is a personal computer, a [PDA or] Personal Digital Assistant (PDA), a mobile phone with access to the Internet 14, or any other suitable [item of] hardware device.

[0039] The user support system 16 includes [an] the originating server 20, [a] the chat server 24, and [a] the gourmet server 26. These three servers] which are all connected to the Internet 14. The originating server 20 includes an electronic collection of [users'] anticipated user commands [utterances] and a[n] utterance] command identification block that identifies the contents of [an inputted] a user [utterance] command. [This utterance] The command identification block is shared by other servers in the user support system, namely[,] the chat server 24 and the gourmet server 26. The chat server 24 and the gourmet server 26 each include an electronic collection of agent action patterns [of an agent to respond to the utterance] and have a response block within their server node that enables [the] their agent to respond to [the] user commands [utterance within each server node].

[0040] The originating server 20, the chat server 24, and the gourmet server 26 are configured as separate network nodes, [and therefore the] allowing the processing[es] of user['s] commands [utterance] and agent['s] responses [utterance can] to be distributed among the servers. Since [an] the agent [in charge of] responsible for one [a different] field can be [also] implemented in a different node than the agent responsible for another, maintenance can [be] easily be conducted for each of the agents. The names "chat server" and "gourmet server" are [given] assigned according to [a] the charged [field] or [a] specialized field of the agent. [In the following, such] Servers such as the chat server 24 and the gourmet server 26 are generally referred to as [a] specialized servers throughout, and the agents [placed] hosted

on these servers are referred to as expert agents. Although the user support system 16 may be configured as [one] a single unit or apparatus, for instance as one component inside of the [a] portal site, it is assumed in the following that the system is configured [as] using separate nodes [and] with the originating
5 server 20 [serves] acting as [a] the portal server for the user terminal 12.

[0041] The user [utterance] command is sent to the originating server 20 and its content is identified in the user [utterance] command collection. Then [an] the agent designated to respond to the [utterance] command is identified according to the content and [a] the response process is executed by the
10 response block. An agent on the chat server 24, [as] also referred to as ["a] the "chat agent", responds to general greetings such as "Hello", and an agent on the gourmet server 26, [as] also referred to as ["a] the "gourmet agent", responds to [utterances] commands related to cooking or dining, such as "Tell me a restaurant serving good Peking ravioli."[.] Each expert agent [finds out]
15 determines what kind of information the user wants during a [talk] conversation with the user, and supports the user [to] in searching for the desired information among [a] the large amount of [available] information available.

[0042] In the user support system [of] described in this embodiment, an information provider, [as also] simply referred to as a sponsor, who [makes]
20 establishes a sponsorship contract with [an] the expert agent is granted [a] higher priority. For instance, [consider] assume that a car manufacturer [is a] sponsors [for] a chat agent and a user says, "I want to get information about a

new-model car [in] from this year."[.] Upon receiving this [utterance] command, the chat agent [searches] finds some pages describing [a] new-model cars among the Web sites searched and presents them to the user. When the chat agent presents the search results [, a page of Company A, which is a sponsor

5 of] the agent's sponsor, Company A, [is] has its page highlighted. For instance, [a] the link to [the page of] Company A's page may be [listed first, or the link may be] highlighted [with] in a different color, listed first, or displayed in a different font or character size. The link to [the page of] Company A's page may be also bordered [with] by a frame or [may be listed] differentiated [with] using

10 an [mark] attached mark such as "recommended[ation]" or "hot site". [The advertisement of] Further, Company A's advertisement may be [also] displayed on the same screen.[. Thereby] making it [is] more [likely for] probable that the user [to] will access the sponsor's site and [the] improving the effectiveness of advertising [can be improved].

15 **[0043]** In this system[,] the sponsor, Company A, is charged for gaining [such] priority. [The] Each sponsor may be charged differently, depending on the number of times [when] their site [takes] is given a high priority or the number of times [when] their advertisement is displayed. Alternatively, the sponsor may only be charged [only] if the user visits [to] their site. Furthermore,

20 the user may select a favorite sponsor. For instance, Company A, [which is] an instant food [maker] producer, Company B, a car manufacturer, and Company C, a restaurant, [are the] sponsor[s for] the chat agent[s]. One user may [set] identify Company A as his/her favorite sponsor, while another user

may [set] choose Company B [as his/her favorite sponsor]. If the user that
[sets] identifies Company A as his/her favorite sponsor says, "I want to eat
noodles", [the advertisement of the] Company A's advertisement [is] will be
displayed according to the contents of the [utterance] command, but no
5 advertisements [of the] for Company B [and] or C [are] will be displayed.
Thereby, only the information that is desired by the users [can] will be
presented. [The] A user who [sets his/her] identifies a favorite sponsor may [be]
receive an award[ed some merit] from the system administrator or [the]
sponsor. For instance, the user's service fee may be reduced or he/she may be
10 awarded cash or a gift [may be awarded to the user].

[0044] The [above-mentioned] business model mentioned above can be [so-
called] termed the Win-Win-Win model, because it [to] produces profits [to] for
[all] each of the three parties[.]; [namely, a] the user, [a] the sponsor, and [a] the
system administrator. When the user browses Web pages, he/she can [obtain]
15 retrieve [desired] the information being sought by using an agent and
simultaneously be relieved of the banner advertisements that always
occupy[ing] the screen. Since an appropriate advertisement is displayed only
when a related [utterance] command is [made] entered, it is not likely that
unwanted advertisements [are] will be displayed. [In addition] Additionally, by
20 [setting] identifying a favorite sponsor, the user can be [awarded] rewarded and
[obtain] receive [hot] timely information from [the] that sponsor.

[0045] Since [the] sponsors can [provide] advertise[ments] directly to [the] users who [makes] enter [an utterance] commands related to their products or services, they can expect [high effectiveness of] their advertising to be very effective. [Since] Unwanted advertisements are not presented to users, [the] so sponsors can save advertising costs and realize [a] high [cost] performance for the amount they are charged. By defining which [the utterances] commands [to] trigger the [displaying the] presentation of an advertisement[s], [a user] both the target users [to provide the advertisements] and [advertising] the display frequency can be adjusted. For instance, the system can be configured [in such a manner] so that [the] advertisements [of] by sponsors in Tokyo are displayed [for] to [the] users who say[s], "Tell me a bar in Tokyo", [and] while [the] advertisements [of] by sponsors in other areas are not displayed. The [advertising] display frequency [can] for advertisements may be set [to a] high [level] by defining [utterances] commands that users [may] enter frequently [use]. [On the other hand,] The sponsor [can] may also target a specific user [bracket] group by [setting] defining specialized terms for the advertisement.

[0046] The [administrator of the] user support system administrator [can take] may charge the sponsor an advertising[ement] fee [from the sponsor]. The system can [provide users with] display advertisements to users more [appropriately] effectively than banner advertisements and thereby [can] reduce network loads. Therefore the system can serve [a lot of] many users and the administrator can [gain] retain a sufficient amount of the users' service fees [from users] and the sponsor's advertising[ement] fees [from the sponsors].

[0047] Although full details are given below, the abstract of the process in Fig. 1 is as follows. When the user activates the user terminal 12, [a] the local agent implemented inside of the user terminal 12 appears on [its] screen. The local agent waits for the first [utterance of the] user command. This [utterance] 5 command is referred to as [a] the process [starting utterance] initiating command [in the following]. The process [starting utterance] initiating command is transmitted to the originating server 20 via the Internet 14. At that time, the user terminal 12 displays [a Web page of] the originating server's 20 Web page on [a] its [WWW] Internet browser.

10 [0048] The originating server 20 [has] stores a collection of user [utterances] commands, [that is a collection of utterances] comprised of commands that users are expected or anticipated to [produce] enter. An additional [utterance] command collection is incorporated into the user [utterance] command collection. The additional [utterance] command collection is a collection of 15 anticipated [utterances] commands that trigger [a] the sponsor prioritizing process. The process [starting utterance] initiating command is [matched] compared with the additional command collection and the command's content [of the utterance] is recognized. As a result, [an] the expert agent [appropriate] designated to respond to the process [starting utterance] initiating command is 20 identified and the URL of its specialized server, as denoted by URLa and URLb in the figure, is sent to the [browser of the] user terminal's 12 browser. When the user terminal 12 [obtains] receives the URL, a Web page [of] on the specialized server is displayed on the screen[,] and the expert agent appears.

The specialized server contains a collection of action patterns for the expert agent, and responds to the process [starting utterance] initiating command and subsequent user [utterances] commands, which are referred to as normal commands [utterances]. Although [utterances of the] agent responses are

5 [mainly] considered [as the] to be the primary agent behavior in the following, the agent may also respond to the user through [a] gestures or other actions, [or may respond] by changing the color or texture of its image, [or] by performing a search, or through any other program processes.

[0049] When the process [starting utterance] initiating command is included
10 in [an] the additional [utterance] command collection of the sponsor specified by the user, the user's access destination [moves] is shifted to a page on a specialized server [to] that performs [a] the sponsor prioritizing process [for prioritizing sponsors, which is in a specialized server]. The process of emphasizing the specified sponsor's Web page or displaying the sponsor's
15 advertisement is executed on this page. [Then] The system then waits until the user [makes] enters another [utterance] command.

[0050] When the user [makes] enters a new [utterance] normal command[,] [that is a normal utterance, to] for the expert agent, the [utterance] command is captured and sent to the originating server 20. The originating server 20 once
20 again identifies [again an] which expert agent is designated to respond to the [utterance] command, [and] then transmits the URL of [its] that agent's

specialized server to the user terminal 12. [Again,] The following sequence is repeated:

1. the originating server 20 identifies [a] the user [utterance] command;
- 5 2. the originating server 20 identifies [a] the specialized server [appropriate] designated to respond to the identified [utterance] command;
3. an expert agent on the specialized server responds to the user;
4. the sponsor prioritizing process is executed (only if the user [utterance] command is contained in the additional [utterance] command
- 10 collection); and
5. the expert agent requests or prompts the user to [make] enter a normal [utterance] command.

[0051] Thus, the process always returns to the originating server 20 and then restarts from there. It is for this reason that the server is named the originating

15 server.

[0052] Fig. 2 shows [an] the internal structure of the originating server 20. In this figure, "H" indicates [utterance] command data, "I" [an] is the index search [of] for the [utterance] command, "F" [a] is the file name [having] containing the URL of [a] the specialized server designated to respond to the [utterance of the]

20 user's command, and "X" [an] is the unidentified [utterance] command, respectively. The structure shown in Fig. 2 may be implemented with a central processing unit (CPU), memory, and a program loaded into the memory. In the

figure[,] however, the blocks are not divided in terms of hardware and/or software components, but rather in terms of function. [The] Those skilled in the art can therefore understand that [the] various combinations of hardware and software components can achieve the functions of these blocks. The same
5 consideration is applied to the whole specification.

[0053] [A] The communication unit 30 communicates with the specialized server and the user terminal 12 via the Internet 14. The [An utterance] command obtaining unit 32 captures [an utterance from] a user's command and sends it to [an] the [utterance] command search unit 34. The [utterance]
10 command search unit 34 initially checks the first character of the [utterance] command with [an] the index file 36 to search by index, [and] then identifies the contents of the [utterance] command by conducting a phrase search [through] of the whole [utterance] command. The phrase search is a process of finding any phrase that matches the [utterance] command not only by word but also by
15 phrase. If no corresponding phrase is found, the [utterance] command is divided into morphemes and a [closely related expression is] search[ed] is conducted to find a closely related expression [for] by key word or words.

[0054] The index file 36 is generated by arranging the anticipated [utterances] commands stored in [a] the user [utterance] command collection 38 in the order
20 of the Japanese syllabary. Since the first character of the [utterance] command is checked with this index file 36, the search for the [utterance] command can be conducted with great speed, even if the user [utterance] command

collection 38 is very large. As described below, since the user [utterance] command collection can easily be enhanced in this embodiment, the [utterance] command collection 38 can be [greatly increased in size] expanded significantly. In this respect, the speed gained by the initial index search is

5 highly advantageous.

[0055] When a[n utterance] command is identified using the index file 36, [a] the [file] descriptor of [a] the file describing information such as [a] the URL of [a] the specialized server [that should] designated to respond to the [utterance] command is identified in the index file 36[, and] The file, [itself] built into the

10 user [utterance] command collection 38, is opened [and] to obtain the proper URL [obtained]. The user [utterance] command collection 38 has one file devoted to each [utterance] command. The file contains [a] the URL of [a] the page used to respond to the user [utterance] command.

[0056] When the user [utterance] command is also included in [an] the

15 additional [utterance] command collection 39, [a] the file in the additional [utterance] command collection 39 corresponding to [the utterance] that command contains [a] the URL of [a] the page [to] that executes [a] the prioritizing process [for] that grants[ing] high priority to a specific sponsor [a high priority]. [A] The sponsor setting status stored in [a] the sponsor information

20 file 50 is [now referred to] discussed below. If the user has registered [the] a specific sponsor as his/her favorite [sponsor], the URL specified in the additional [utterance] command collection 39 is used and the sponsor

prioritizing process is executed. If the user has not registered [the] a sponsor, the user access destination moves to the URL specified in the user [utterance] command collection 38 and the sponsor prioritizing process is not executed.

[0057] The URL obtained [in] from the user [utterance] command
5 collection 38 or the additional [utterance] command collection 39 is forwarded to the [browser of the] user terminal's 12 browser via the communication unit 30, and the user terminal 12 in turn accesses the specialized server. Strictly speaking, the URL does not point to a general Web page [of] on the specialized server, but instead to a [personalized] customized page designed to respond to
10 the [utterance of the] user's command. One page is allocated to [one utterance] each command, and in some cases, multiple pages are allocated to one [utterance] command. The latter cases are described below.

[0058] A statement [exactly] that corresponds[ing] exactly to the [utterance of the] user's command may not always have been previously stored in the user
15 [utterance] command collection 38, so a perfect match may not be found. [Especially in the process of enhancing the user utterance collection 38, perfectly corresponding statement may not be found,] This is particularly true during the process of enhancing the user command collection 38. In this case, the [utterance] command search unit 34 breaks [down] the user [utterance]
20 command into morphemes by a known method and finds the most probable [utterance] command from the user [utterance] command collection 38 by [re-]searching again using [employing] a logical AND of the morpheme's nouns [of

morphemes] or by similar processes. Each [utterance] command for which an
[re-] additional search is conducted [and each utterance for which the re-search
is not] unsuccessfully is recorded as an unidentified [utterance] command in an
unidentified [utterance] command file 40, and [an administrator of] the
5 originating server's 20 administrator is notified [of this] via the communication
unit 42 [in] by an electronic mail or [the like] similar method. The administrator
then registers [anew such] both the unidentified [utterances] command and the
URL of [a] the page [of a] on the specialized server that [should] is designated
to respond to the [utterance] command in the user [utterance] command
10 collection 38, [and] registers the [indexes of the utterance] command's index in
the index file 36, and [then] finally designs the processes [including] containing
the [utterances] responses for the expert agent on that page. For this kind of
maintenance, the unidentified [utterance] command can be added [straight]
directly to the user [utterance] command collection 38 [and no] without any
15 complicated processes [is involved]. Therefore, it is [a] very easy [task] to
enhance the user [utterance] command collection 38.

[0059] [An] The additional index file 37 is generated by arranging the
anticipated [utterances] responses stored in the additional [utterance] command
collection 39 in the order of the Japanese syllabary. In Fig.2, the additional
20 index file 37 and the index file 36 are depicted as separate files for ease of
[understating] explanation, but the contents of the additional index file 37 is
actually incorporated into the index file 36.

[0060] The additional [utterance] command collection 39 stores [utterances] commands that trigger the sponsor prioritizing process. In Fig.2, the additional [utterance] command collection 39 and the user [utterance] command collection 38 are depicted separately for ease of [understating] explanation, but the contents of the additional [utterance] command collection 39 is actually incorporated into the user [utterance] command collection 38. The sponsor may set which [utterances] commands are to be stored in the additional [utterance] command collection 39 [may be set by the sponsor]. The sponsor can adjust the number of target users or a target user bracket by changing the contents of the additional [utterance] command collection 39. A user database storing user attributes, which is not shown in the figure, may be provided and the advertisement may be displayed according to [the] those user attributes.

[0061] An access recording unit 44 [records] tracks the status of each user's access[ing of] to [the] a given specialized server in an access information file 46. This enables the expert agent to respond differently to identical user [utterances] commands. For instance, when a user who [first] is visiting[s] the chat server for the first time 24 says "Hello", the [expert agent of the] chat server's 24 expert agent, also referred to as [a] the chat agent, will say "Nice to meet you". [On the other hand] However, if the user visits the chat server 24 again, the chat agent [can] will say "Hello. How's it going?" [and so on.] Therefore, a certain sensitivity of response can be realized. The access recording unit 44 notifies the [utterance] command search unit 34 of the user's access status. If [multiple pages] more than one of the specialized server's

pages are employed in the user [utterance] command collection 38 in order to respond to a user [utterance] command, as in this example, the [utterance] command search unit 34 chooses [an] the appropriate page [under] by referencing the user's access status and then [sets the] sends that URL [of the
5 chosen page on the browser of] to the user terminal's 12 browser.

[0062] [A] The sponsor setting unit 48 sets [a] the sponsor specified by each user in [a] the sponsor information file 50. The sponsor setting unit 48 [presents] shows the user which [the] sponsors are under contract with the specialized agent [to the user] and [inquires of him/her] asks which sponsor
10 [he/she] the user would like to select. The sponsor selected by the user is then recorded [stored] in the sponsor information file 50.

[0063] Fig. 3 is [an] the internal structure of the index file 36[.] and Fig. 4 is [an] the internal structure of the user [utterance] command collection 38. The index file 36 [has] contains a Japanese syllabary column 100, a user [utterance]
15 command column 102, and a file name column 104. The user [utterances] commands are arranged in the order of the Japanese syllabary. If the first character is "A", the [utterance] command is [categorized] inserted in the position corresponding to "A" [of] in the Japanese syllabary column 100.
[Likewise, the utterances are categorized by using the first character as shown
20 in the figure.]

[0064] The user [utterance] command collection 38 [has] contains a file name column 104, a user [utterance] command column 102, and a page column 120 listing the pages [of a] on the specialized server designated to respond to the user. For instance, [a] the page [of] on [a] the specialized server used to

5 respond to the [utterance] command "Hi" is URLa43, and [a] the pairing of the [utterance] command "Hi" [and] with URLa43 forms [a] the file f044. The user [utterances] commands are [gathered for] grouped according to each specialized server. For instance, the user [utterances] commands 110 [which] that are linked to the chat server 24 are [put together] combined into one group,

10 while the user [utterances] commands 120 linked to the gourmet server 26 are [put together] combined into another group. The index file 36 and the user [utterance] command collection 38 are linked together [via] by file names. For instance, the file name f045 is recorded corresponding to the [utterance] command "Hello" in the index file 36[,] and [the file name] points to the file f045

15 in the user [utterance] command collection 38.

[0065] As shown in Fig. 4, two pages, URLa1 and URLa2, correspond to "Hello". URLa1 [will be] is sent to a user [who first] visiting[s] the chat server 24 for the first time and URLa2 is sent to [a] that user [who] upon each subsequent visit[s the server a further time].

20 **[0066]** Fig. 5 illustrates [an internal description] the contents of the access information file 46. In this figure, [the user] "user1" has previously visited the specialized servers [called] named "chat", "gourmet", and "auction" [before],

while [the user] "user2" has already visited the specialized servers named "travel" and "PC". Therefore, as stated above, when "user2" visits the chat server 24, the chat agent [starts with an utterance] will give the greeting prepared for [first-time] new visitors. When "user1" visits the chat server 24, the
5 chat agent will give the greeting [produces an utterance] prepared for [revisitors] returning visitors.

[0067] Fig. 6 is [an] the internal structure of the sponsor information file 50. In this figure, [one user] "user1" has set[s] "Company A" and "Company C" as sponsors of the chat agent and [sets] "Chinese Restaurant A" and
10 "Restaurant Z" as sponsors of the gourmet agent. [On the other hand, another user] "User2" has only set[s] "Company B" as [a] the [sponsor of the] chat agent sponsor and has not selected a gourmet agent sponsor. Therefore, while [the user] "user1" is talking with the chat agent, [the] advertisements [of the] for companies A and C [are] will be displayed, but [the] not advertisements [of the]
15 for company B [are not displayed].

[0068] Fig. 7 is [an] the internal structure of the additional index file 37[.] and Fig. 8 is [an] the internal structure of the additional [utterance] command collection 39. As described above, the additional index file 37 and the additional [utterance] command collection 39 are incorporated into the index
20 file 36 and the user [utterance] command collection 38 respectively, [however, these files] but they are [explained] presented [here] as separate files here for ease of explanation [understanding]. The additional index file 37 [has] contains

a Japanese syllabary column 200, an agent [utterance] response column 202, and a file name column 204. The user [utterances] commands are arranged in the order of the Japanese syllabary, as they are in the index file 36.

[0069] The additional [utterance] command collection 39 [has] contains a file
5 name column 204, a user [utterance] command column 202, and a page
column 220 identifying the correct page [of a] on the specialized server
designated to respond to the command. For instance, [a] the page [of a] on the
specialized server designated to respond to the agent [utterance] response
"steamed bun" is URLa203, and [a] pairing [of] the [utterance] response
10 "steamed bun" [and] with URLa203 forms [a] the file f702. The user
[utterances] commands [are gathered] for each specialized server are grouped
into sets; [as an utterance] command collection 210 for [a] the Japanese [case]
cake shop D, [an utterance] command collection 212 for [a] the Chinese
restaurant A, and [an utterance] command collection 214 for [an] the Italian
15 restaurant E. The additional index file 37 and the additional [utterance]
command collection 39 are linked together [via] using file names. For instance,
the file name f805 is recorded corresponding to the [utterance] response
"dumpling" in the additional index file 37[,] and [the file name] points to [the]
file f805 in the additional [utterance] command collection 39.

20 [0070] Fig. 9, [is an] the internal structure of the gourmet server 26, [as]
provides an example of a specialized server. [A] The communication unit 60
communicates with the user terminal 12 and the originating server 20 via the

Internet 14. The URL identified in the [utterance] originating server's 20
command search unit 34 [of the originating server 20], [for instance,] URLa1 or
URLa2 which correspond[ing] to the [utterance] command "Hello" as shown in
Fig. 4 for instance, is forwarded to [an] the agent action collection 62 via the
5 communication unit 60. The agent action collection 62 includes agent data 72
that describes the expert agent's images, [and] action patterns, [of the expert
agent as well as its utterances] and responses, [and] as well as sponsor data 90
that stores sponsor's advertisement data [of the sponsors]. One page
corresponding to [one] the URL identified by the [utterance] command search
10 unit 34 is also provided. For [instance] example, [a] page 64 is provided for
URLa1, [a] page 66 for URLa2, and [a] page 68 for URLan [are provided].
These Web pages [are Web pages that not only carry] contain the [utterances
of the] gourmet agent's[,] responses, [but also] display its image and behavior,
and [further] perform agent services [using the agent, for instance for] like
15 information retrieval [and such]. Thus, fully flexible responses can be given by
providing [one] a customized Web page for each [single utterance] command [,
fully flexible responses can be realized].

[0071] Each page [has] is configured in almost the same [configuration]
manner, so only page 64 of URLa1 is described in detail in this figure. Page 64
20 [of the URLa1] has an agent output unit 70, a user [utterance] command
obtaining unit 74, and a specific process execution unit 76. These units can be
configured [in various manners such that] to retain the main functions [remains
at] on the server side like [CGI or] a Common Gateway Interface (CGI)

implementation, to transfer the main functions [are transferred] to the client side [like a] using Java™ [(trademark)] applets or ActiveX™ components, [(trademark), and an API] or to use an Application Program Interface (API) [type] strategy[,] that [is,] divides the main functions [are provided at] between 5 [both] the server and the client [like a Java application]. The agent output unit 70 responds to [the] a user [utterance] command through the gourmet agent on the basis of the agent data 72. The specific process execution unit 76 performs any processes other than [that of] responding to [utterances] commands[,]. For instance, it will retrieve[ing] information and execute[ing] 10 various types of programs. [For example,]If the [user utterance] command that brought the user to [access this] a specific page [is] was "I want to know restaurants in Shijuku", the gourmet agent will [search information related to restaurants through] use the Internet 14 to search for information related to applicable restaurants and present [it] the results to the user. Next, the user 15 [utterance] command obtaining unit 74 [thereafter] obtains a normal [utterance] command from the user[,] and notifies the originating server 20 [of this]. [As a result, a new specialized server is identified by]The originating server 20 then identifies the specialized server designated to respond to that command.

[0072] Fig. 10 is [an] the internal structure of the page [for] that executes[ing] 20 the sponsor prioritizing process, which is stored in the agent action collection 62. The specific process executing unit 76 includes an information search unit 78 that uses the Internet 14 to search[es] for information requested by the user [through the Internet 14,] and a sponsor processing unit 80 that

executes the sponsor prioritizing process for the search results. The sponsor processing unit 80 includes a display order setting unit 82 that displays a specific sponsor's information at the top of the [listed] search results, a display attribute setting unit 84 that emphasizes the [displayed] sponsor's displayed information, an advertisement display unit 88 that displays the sponsor's advertisements, and an update status reporting unit 86 that notifies the user [of the updating status of] when the sponsor's site has been updated. The sponsor processing unit 80 retrieves [the] stored information [stored] from the sponsor data 90 and determines how the sponsor's information should be displayed.

10 The search results processed by the sponsor processing unit 80 are displayed to the user through [an] the information providing unit 71 in the agent output unit 70.

[0073] Fig. 11 shows the internal structure of the user terminal 12. [A] The communication unit 130 communicates with the originating server 20, the chat server 24, the gourmet server 26, and other specialized servers via the Internet 14. [A] User interface 138 is a general term for the whole structure used to encourage [a] the user to make a decision and to enable[ing] the user to input [his/her] that decision[.]. [and it] The user interface 138 includes a keyboard, a mouse, a display, and other types of data interfaces. [A] The local agent output unit 132 reads local agent data 134 and forwards [the data] it to the user via [a] the user interface 138. The process [starting utterance] initiating command and normal [utterances] user commands [of the user] are forwarded to [a] the user [utterance] command input unit 136 and [these data are] then sent to the

originating server 20 via the communication unit 130 and the Internet 14. The processes involved in the above-mentioned configuration of the embodiment are now described using [some] examples[as follows].

[0074] Fig. 12 shows [a] the screen 150 displayed when a user has activated
5 the user terminal 12. [A] The local agent 152 appears and says, "Welcome! Let's chat." The user inputs "Hello" in [an] the input field 154 and presses [a] the send button. The [screen] page may be configured [in such a manner that] to have the input field 154 appear[s] when the user clicks the local agent 152. In this case, as long as the user does not click, the local agent 152 may
10 continue chatting or trying to encourage the user to talk by asking a question. [In any case] Regardless of the implementation, the [inputted] statement "Hello" is sent [as a process starting utterance] to the originating server 20 as a process initiating command, [and] the chat server 24 is identified as [a] the specialized server designated to respond on the basis of the statement's
15 content[of the statement], and the user terminal 12 is given access to [a corresponding] the appropriate page.

[0075] Fig. 13 shows [a] the screen 150 displayed when the user [makes an utterance] enters a command. Here [a] the chat agent 156 appears[, but] using the same image as the local agent 152 [is used in this embodiment] and [thus]
20 the conversation appears to continue[s with no apparent seams] seamlessly. The chat agent 156 says, "Hello. I am a chat agent. Call me Peako." When the user [inputs] enters "Let me know a restaurant serving good Peking ravioli."

and presses send[s it], the [utterance] command is obtained [at] by the originating server 20 and a page [of] on the gourmet server 26 is [anew] identified. The URL of the identified page is then sent to the user terminal 12 and the user terminal 12 is given access to [the] that page.

5 **[0076]** Fig. 14 shows [a] the screen 150 displayed when the user asks for information. [A new] The gourmet agent 160 appears and says, "All right! Trust me. I am a Gourmet Agent." and the information search unit 78 searches Web pages using "Peking ravioli" [or] and "dumpling" as [a] key words. In order to prevent the user from getting bored during the search, the agent says[,] "Wait
10 for a moment. I will come back soon." to [tell] indicate that the search[ing] is being executed. When the search [is] has been completed, the browser is given access to a page [to] displaying [a] the search results.

[0077] Fig. 15 shows [a] the screen 150 displaying the search results. The information providing unit 71 displays the titles 170 of the [Web] pages obtained
15 by the information search unit 78[are displayed by the information providing unit 71]. Each of the titles 170 has a link to [a] the corresponding page. In this example, because the user has registered [a] Chinese restaurant A as a sponsor of the gourmet agent, the [Web] link [of the] to restaurant A is displayed at the top of the recommendation list. This is accomplished by [through] the
20 process executed in the display order setting unit 82. [In a] Additionally, [its] the font [type is] has been changed to [a] bold [type] through [the] a process in the display attribute setting unit 84. [Furthermore] Finally, the advertisement

display unit 88 presents [a] the sponsor's advertisement through the [utterance of the] gourmet agent's 160 [saying] response "Restaurant A is famous for its citrus-flavored Chiaotzu".

[0078] Fig. 16 illustrates [a] the screen displayed when the gourmet
5 agent 160 notifies the user [of the updating status of] that the sponsor's site has been updated. In this example, the gourmet agent 160 notifies the user, who has registered [the] Chinese restaurant A as [the] a sponsor, [that] of the change in status [Chinese restaurant A's Web site has been renewed]. The update[ing] status may be checked whenever the user [makes] enters a related
10 [utterance] command, [and] but the [status] user may only be notified [only] if the site has been updated. The update[ing] status may also be monitored periodically. When the system finds, through monitoring, that the site has been updated [by monitoring], the user may be notified [at this point] immediately or after the user [makes] enters a related [utterance] command. The [last] date
15 and time [when] of the user's last visit[ed at] to the sponsor's site may be recorded, and the user may be notified when the site is updated thereafter [the last date and time]. The last date and time may be stored in a database [of] on the originating server 20 or [may be]recorded on the user terminal 12 as a cookie.

20 [0079] Although the present invention has been described by way of exemplary embodiments, it should be understood that those skilled in the art might make numerous changes and substitutions without departing from its [the]

spirit and [the] scope [of the present invention that] as it is defined by the appended claims. Some [such] possible alterations are [stated as follows] described below.

[0080] Although the [utterance] command identification block [is shared at]
5 hosted on the originating server 20 is shared in this embodiment, each specialized server may [include both the] contain a [utterance] command identification block and [the] a response block. In [such a] that configuration, both the user [utterance] command collection and the agent action collection [can] may be managed independently for each specialized field, [and the]
10 making management and maintenance of the agent [will become] easier. However, [In any configurations,] a central server may be provided to process all [the utterances] commands in any configuration.

[0081] Although the user [utterance] commands are [is performed on a] entered in text [basis] in [the] this embodiment, [it] they may also be [performed]
15 entered using speech recognition. The agent may also [make utterances in voice] respond to the user verbally/orally.

[0082] Although [the] an unidentified [utterance] command is considered [as an] to be a [utterance] command that is not identifiable in the user [utterance] command collection 38, [if the utterance] a command that is identifiable in the
20 user [utterance] command collection 38 but [the response of the] has an expert agent response that is not complete or fails[, the utterance] may also be called

an unidentified [utterance] command. For instance, when the specific process execution unit 76 searches for [a] the user [utterance] command "Recommend a recipe" and the search returns [results are] too many results to satisfy the user, the [utterance] command may be reported to the system administrator as an
5 unidentified [utterance] command so that the [response of the] expert agent's response can be improved.

[0083] In the present embodiment, the appropriate expert agent [utterance] response is[appropriately] selected according to the record of the user's access to the specialized server. Moreover, an appropriate agent response [utterance
10 of the agent] may be selected based on the user's s attributes. For instance, if the user is female, a relatively gentle expression may be chosen, [or] while if the user is [an] elderly, a polite expression may be [chosen] used.

[0084] Although the local agent 152 and the chat agent 156 have the same image in the embodiment, it is not [necessary] required. The local agent 152
15 may be implemented on the originating server 20 instead of the user terminal 12 as a process-initiating agent, for instance.

[0085] Although the access information file 46 and the sponsor information file 50 are stored [in] on the originating server 20 in the embodiment described, these files may alternatively be stored [in] on the user terminal 12 as temporary
20 data, for instance[,] as cookies.

[0086] Although the system is [so] configured [that] to allow [the] each user [can] to set his/her favorite sponsors individually, [the system] it may provide the sponsor information equally [for] to all users who visit[ed] the specialized server.

[0087] Although [such] functions such as the [utterance] command identification block and the response block are implemented [in] on the server side, some [part of these functions] or all of these functions may be implemented or installed [in] on the user terminal 12. For instance, the identification block may be downloaded [beforehand] to the user terminal 12 beforehand [and] to allow [the utterance] command analysis [may] to be performed at the user terminal, [and] while the user terminal may still access [to] the server [having] containing the response block. Some [of functions] of the specialized agent's functions, which are [particularly] in particularly frequent use, may be downloaded to the user terminal 12. Since part [of] or all of the [utterance] command analysis and [the] agent response processes [of the agent] can be performed on the user terminal 12, [a] it is possible to generate quick responses [can be realized]. Thus any configuration [can be made in] is possible with respect to [how to divide] the division of functions between the server and the client.

WHAT IS CLAIMED IS:

1. A user support apparatus comprising:

an utterance identification block which has an electronic collection of anticipated user utterances, and identifies a content of an inputted user utterance;

a response block which has an electronic collection of action patterns for an agent for responding to the user utterances, and enables the agent to respond to the inputted user utterances;

a search unit which searches information requested by the user among information offered by a plurality of information providers; and

a process unit which executes a process for prioritizing the information providers,

wherein the utterance identification block further includes an additional collection of anticipated utterances that trigger the prioritizing process, and the process unit initiates the prioritizing process when the inputted user utterance is included in the additional utterance collection.

2. The apparatus of claim 1, wherein the additional utterance collection is incorporated into the user utterance collection.

3. The apparatus of claim 1, wherein the process unit arranges information related to a specific information provider at the top of a list of search results obtained by the search unit.

4. The apparatus of claim 1, wherein the process unit emphasizes information related to a specific information provider when a search result obtained by the information search unit is presented to the user.

5. The apparatus of claim 1, wherein the process unit displays a search result obtained by the information search unit with an advertisement of a specific information provider attached.

6. The apparatus of claim 1, wherein the process unit monitors an updating status of information related to a specific information provider and notifies the user of the updating status when the information has been updated.

7. The apparatus of claim 1, further comprising a charging unit which charges an information provider granted a high priority by the process unit.

8. The apparatus of claim 1, further comprising a setting unit which enables the user to register a specific information provider to be granted a high priority, and wherein the process unit executes the prioritizing process for the registered specific information provider.

9. The apparatus of claim 1, further comprising an awarding unit which awards the user a merit when the user registers a specific information provider to be granted a high priority.

10. The apparatus of claim 1, further comprising a library providing unit which offers the user utterance library to a third party off line or on line.

11. The apparatus of claim 1, further comprising a recording unit which obtains a record of the user's access to the system, wherein the response block chooses one from a plurality of choices of the action patterns of the agent to respond to the user utterance depending on the user's access record.

12. A user support system comprising a plurality of said user support apparatuses of claim 1 connected to a network as independent network nodes, each of the apparatuses corresponding to one specialized field, wherein the user utterance collection, the agent action collection, and the additional utterance collection of each of the apparatuses are generated according to each specialized field.

13. The system of claim 12, wherein the plural user support apparatuses include the respective response blocks therein and share the utterance identification block at any one of the network nodes.

14. The system of claim 12, wherein the utterance identification block of the user support apparatus further includes an index storage that stores an index of contents of the user utterance collection, and the information search unit initially searches the inputted user utterance in the index storage.

15. The system of claim 12, wherein the user support apparatus further comprises a library providing unit which offers the user utterance library to a third party off line or on line.

16. The system of claim 12, wherein the user support apparatus further comprises a recording unit which obtains a record of the user's access to the system, wherein the response block chooses one from a plurality of choices of the action patterns of the agent to respond to the user utterance depending on the user's access record.

17. The system of claim 12, wherein the process unit of the user support apparatus arranges information related to a specific information provider at the top of a list of search results obtained by the search unit.

18. The system of claim 12, wherein the process unit of the user support apparatus emphasizes information related to a specific information provider when a search result obtained by the information search unit is presented to the user.

19. The apparatus of claim 12, wherein the process unit of the user support apparatus displays a search result obtained by the information search unit with an advertisement of a specific information provider attached.



ABSTRACT OF THE DISCLOSURE

A user support system using [an] agent technology is provided. An entrance server identifies a user [utterance] command by matching it with a collection of anticipated user [utterances] commands. [A] The specialized server designated to respond to [the] that user [utterance] command is then determined according to the command identified [user utterance]. The specialized server [has] hosts a collection of action patterns [of an] for an agent [for] to use in responding to the user [utterance] command. The agent [supports] assists the user [to] in search for information or navigating[es the user] to the [access desired] information he/she desires by [friendly talking] engaging in a friendly conversation with the user. Information providers can sponsor [the] an agent. When the agent displays information requested by the user, information related to [the] that agent's sponsor[s], particularly [their] advertisements, will be [outstandingly] prominently displayed.

15